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Is ocular dirofilariasis an emerging zoonoses in India? Report of five cases and review of literature

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Background: Dirofilariasis is a zoonotic filarial nematode infection , occurs occasionally in humans and humans are accidental dead-end hosts. Human Infection by *Dirofilaria* species have been reported from various regions of the world mainly from Europe, Africa and Asia. Number of dirofilaria cases are gradually increasing in India. In the present study we report 5 cases of ocular dirofilariasis and review of published literature from India.

Methods & Materials: Medical and microbiology records of 5 patients with ocular dirofilariasis presented between May 2014 and September 2015 reviewed. *Dirofilaria* were identified morphologically based on size, body cuticle and prominent musculature. Systematic review of literature concerning dirofilariasis reported from India was performed.

Results: Four of five patients were males and the age ranges from 42 years to 60 years.In two patients the worm was extracted from sub conjunctival space, two patients the worm was extracted from nodule of lower lid margin and in one from the upper lid. In all the five patients the worm was identified as *Dirofilaria repens* based on morphological features. Microfilaria were not detected in peripheral smear and eosinophilia was absent in all 5 patients. Review of literature results revealed that in India, majority of dirofilariasis cases are ocular (>90%). Ocular dirofilariasis was reported from Kerala, Karnataka, Tamil Nadu, Delhi, Maharashtra, Gujarat, Assam, Haryana and Telangana (Present study cases) states and highest number from Kerala. *D.repens* (99%) is the most commonly isolated species from ocular dirofilariasis cases in India and rarely *D.tenuis*.The different sites of ocular involvement include periorbital, orbital, subconjunctival, subtenon and anterior chamber. The diagnosis was done by identifying the excised worm and no microfilaria were detected in peripheral smears of patients with ocular dirofilariasis. None of the patients showed eosinophilia. Surgical removal of the worm was definitive choice of treatment and prognosis was usually good in ocular dirofilariais patients

Conclusion: To the best of our knowledge, this is the first report of ocular dirofilariasis cases from Telangana state. In India, ocular dirofilariasis is on rise and awareness among ophthalmologists, microbiologists will improve the patient care.

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Incidence of brucellosis in Livestock in North-Eastern India

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Background: Brucellosis still remains a major endemic disease in India with considerable public health and economic significance. To understand its epidemiological status in livestock distributed in Northeastern India particularly Meghalaya, seroprevalence study based on ELISA and RBPT was undertaken from October 2012-September 2015, along with molecular characterization of the isolates.

Methods & Materials: A total of 4371 serum samples were collected from cattle (n=1505), buffalo (n=21), pig (n=2564) and goat (n=281) scattered over Meghalaya (n=3310), Manipur (n=404), Nagaland (n=389), Mizoram (n=100), Tripura (n=107), Sikkim (n=40), and Arunachal Pradesh (n=21). Besides, from Meghalaya, clinical samples viz. vaginal swabs, vaginal discharge of cattle (n=70), goat (n=1), joints aspirate from cattle (n=2), tissue samples such as placenta and uterus of cattle (n=3) and swine n=2) and blood samples of cattle (n=157) and swine (n=17) were processed for isolation and identification by standard protocols, PCR and sequence analysis.

Results: Overall, Meghalaya represents a seropositivity of 5.6% by ELISA and 2.8% by RBPT. None of the samples from the remaining states except Manipur (0.49%) were seropositive by ELISA. Species-wise seropositivity ranged from 0% to 11.29%, with 11.29% for bovine and 0.78% swine by ELISA and 5.91% bovine and 0.15% swine, were positive by RBPT. Bubaline and caprine samples were found negative by both the tests. Analysis of variance in incidence of brucellosis among age groups and sex revealed no significant difference in mean sample positivity. From the clinical samples nine *Brucella* isolates was recovered *i.e.* seven from cattle, one each from goat and swine by culture and isolation. Further, AMOS and Bruce ladder PCR assay could confirmed the cattle and goat isolates as *Brucella abortus* and the swine isolates as *Brucella suis.* Bidirectional sequencing and BLAST analyses also confirms the cattle isolates as *Brucella abortus*. In addition, 54 cattle and 6 swine blood samples were found positive for *bcsp* gene encoding the surface protein of *Brucella.*

Conclusion: This study underscores the incidence of brucellosis only in Meghalaya and Manipur. Interestingly, in Meghalaya seropositivity was noted primarily in adjoining areas of Assam. Thus, it is imperative to develop a sustainable control strategy for timely intervention and further prevention.

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